REMARKS

I. Status of the Application

Claims 1-21 are pending in this application. In the May 14, 2002 office action, the Examiner:

1. Rejected claims 1-21 under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,262,672 to Brooksby et al. (hereinafter "Brooksby"); and

2. Rejected claims 1-21 under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,323,650 to Bertness et al. (hereinafter "Bertness").

In this response, applicants have amended claim 21 to correct what amounts to be an inadvertent typographical error. Applicants otherwise respectfully traverse the rejections under 35 U.S.C. § 102 and respectfully request reconsideration of the pending claims in view of the following remarks.

II. The Prior Art Rejections Should be Withdrawn

In the May 14, 2002 office action, claims 1-21 were rejected as allegedly being anticipated by either Brooksby or Bertness. As discussed further below, neither Brooksby nor Bertness teach, suggest or disclose all of the elements of any of claims 1-21. Accordingly, it is respectfully submitted that the application is in a condition for allowance.

A. The Present Invention

Claim 1 is directed to an arrangement for generating and storing metering information in a meter that measures a consumed commodity. The arrangement includes a processing circuit and a non-volatile, rewriteable random access memory. The processing circuit is operable to generate metering information. The non-volatile, rewriteable random access memory stores metering information during normal operation, and is operable to retain the stored metering information in the absence of external electrical power.

Among other things, the invention of claim 1 overcomes some of the deficiencies of using an EEPROM as a non-volatile memory in a metering environment. Such deficiencies include limited re-write cycles, limited access speed, and power consumption. (See application at pp.2-3). Such deficiencies render EEPROMs unsuitable for high use storage as is necessary for some functions in a utility meter. (See *id.* at p.3). Indeed, even the prior art cited by the Examiner admitted such deficiencies. (See Brooksby at col. 11, lines 13-25). The present invention addresses such shortcomings, as well as others, by employing a non-volatile random access memory ("RAM").

Claim 12 is directed to a method of storing metering information in a utility meter that includes employing a processing circuit to generate metering information, periodically storing the metering information in a non-volatile rewriteable random access memory, and retaining the stored metering information in the memory in the event of a power failure.

Analogous to claim 1, the method of claim 12 provides a preferable alternative to prior art methods of storing metering information in EEPROMs, volatile memories, or both.

Claim 20 is similar to claim 1, but further recites that, in addition to metering information, the non-volatile rewriteable random access memory stores program code to be executed by the processing circuit. In addition, the processing circuit also generates metering information in the form of load profiling information.

Claim 21 is similar to claim 1, but further recites that, in addition to metering information, the non-volatile rewriteable random access memory stores calibration information.

B. Brooksby

Brooksby is directed to a meter that has selectable measurement, calibration, display and communication means so as to be reconfigurable. One feature includes the ability to store information to a non-volatile EEPROM in the event of a power failure. As with the prior art EEPROM shown in the prior art Fig. 1 of the present application, the EEPROM has limited re-write cycles and must be preserved for use only in connection with an imminent power outage event. (See Brooksby at col. 11, lines 13-25).

C. Bertness

Bertness is directed to an electronic battery tester. The battery tester tests the conductance of a battery using a Kelvin connection and then determines whether the

battery under test is "good", "bad", or "good in need of a charge". (Bertness at cols. 3-4). The battery tester employs a non-volatile memory to store rated parameter values for batteries. (*Id.* at col. 4, line 64 to col. 5, line 3). In operation, the measured parameter, such as conductance, is compared to the stored value to obtain a relative value. (*Id.*) The rated value may be changed by the user and stored in the non-volatile memory. (*Id.* at col. 5, lines 3-23).

D. Brooksby Does Not Anticipate the Claims

All of claims 1-21 recite, either directly or indirectly, a non-volatile random access memory. Brooksby fails to teach, show or suggest any method or apparatus that includes a non-volatile random access memory. Brooksby instead employs an EEPROM as a non-volatile memory, which is not a random access memory. Indeed, the application itself clearly distinguishes the use of an EEPROM from the use of the claimed non-volatile RAM. (See, *e.g.*, application at pp.2-3 and p.5).

More specifically, one of the advantages of the present invention arises from the use of the non-volatile RAM for certain purposes instead of an EEPROM. EEPROMs, which are currently widely used in the metering art, have many shortcomings that are addressed by the present invention. Even the prior art Brooksby describes the shortcomings pertaining to the use of EEPROMs. In particular, Brooksby admits the EEPROM has limited re-write cycles, and thus must be used conservatively. (Brooksby at col. 11, lines 13-25; Application at pp.2-3). Accordingly, Brooksby suffers from the very deficiencies that the present invention was intended to overcome.

Because Brooksby fails to teach inclusion of, or use of, a non-volatile RAM as recited in all of the claims, it is respectfully submitted that the rejection of claims 1-21 as allegedly anticipated by Brooksby is in error and should be withdrawn.

E. Bertness Does Not Anticipate the Claims

For the reasons discussed below, it is respectfully submitted that Bertness fails to anticipate claims 1-21. As an initial matter, Bertness appears to fail to teach the use of a non-volatile RAM, as required by claims 1-21. However, even if the memory of Bertness were assumed to be a non-volatile RAM, which it is not, Bertness would fail to include each and every limitation of any of claims 1-21.

1. Claim 1

Claim 1 includes limitations directed to a "processing circuit operable to . . . generate metering information" and a "non-volatile . . . memory for storing the metering information during normal operation". In other words, claim 1 includes a non-volatile memory that stores metering information generated by a processing circuit. Bertness fails to disclose such a memory.

In particular, while Bertness discloses the use of a non-volatile memory, the non-volatile memory is *not* used to store anything that can be considered metering information. Bertness describes two uses of the non-volatile memory: storage of rated values against which measurements are compared (col. 5, lines 1-22); and storage of a calibration value (col. 5, line 49 to col. 6, line 10). Neither the *rated values* nor the

calibration values of Bertness can be considered to be metering information within the meaning of claim 1.

First, the rated values of Bertness are merely reference values against which measurements are compared. These reference values do not constitute information generated from commodity consumption values by the processing circuit, as per claim 1. Thus, storage of "rated values" in a non-volatile memory does not constitute the storage of metering information in the non-volatile memory as claimed in claim 1.

Second, the calibration information of Bertness is not "metering information" that is generated from commodity consumption information *in normal operation*. The calibration information in Bertness is generated during manufacture of the device, and *not* during normal operation. (See, *e.g.* Bertness at col. 5, lines 49-51). Moreover, the present application clearly distinguishes "metering information" from "calibration information". Specifically, the following passage from page 7 of the application as originally filed evidences the distinction

> The NVRRAM 58 is coupled to receive metering information from the processing circuit 52. The NVRRAM 58 stores such information in the event of a power interruption to the meter circuit 50. The NVRRAM 58 *may also store calibration parameters* of the meter circuit 50.

(emphasis added) (Also, compare claims 1 and 5). As clearly evidenced above, calibration information is *not* considered to be metering information within the context of the present application. Moreover, as discussed above, calibration information certainly is not generated in *normal* operation, but rather during specific calibration operations. Accordingly, storage of calibration values in a non-volatile memory does not constitute the storage of metering information in the non-volatile memory as claimed in claim 1.

Finally, it is noted that Bertness discusses generally the storage of measurement values (*i.e.* metering values) at column 5, lines 24-36. However, those passages do not disclose or suggest use of the *non-volatile memory* to store such measurement values. Specifically, Bertness states that:

> Microprocessor 56 can also capture and store voltage measured by amplifier 70. For example, microprocessor 56 can take a number of samples using the analog to digital converter 54 and store a high value and a low value. These values can subsequently be retrieved using input 66 and displayed through indicator 62.

(Bertness at col. 5, lines 24-30). Thus, Bertness employs the microprocessor 56, and not the non-volatile memory 60, to store the measurement values. To this end, it is known in the art that microprocessors ordinarily include registers in which values may be routinely stored and retrieved. However, such registers are not "non-volatile" within the meaning of claim 1.

Accordingly, Bertness does not disclose a "non-volatile. . . memory for storing metering information during normal operation" wherein the metering information is generated from commodity consumption information, as called for in claim 1. For this reason, among others, it is respectfully submitted that the rejection of claim 1 as anticipated by Bertness is in error and should be withdrawn.

2. Claims 2-11

Claims 2-11 all depend from and incorporate all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the rejections of claims 2-11 as being anticipated by Bertness are in error and should be withdrawn.

3. Claim 12

Claim 12 recites steps of "employing a processing circuit to generate metering information relating the consumption of a metered commodity", among other things. Bertness is a battery tester. While Bertness tests, to some degree, the consumption of energy, it does not generate information relating to the *consumption* of a *metered* commodity, as called for in claim 12. Battery energy is not a commodity for which consumption is ordinarily metered. Merely identifying the lack of energy in a battery through measurement, as is done by the Bertness battery tester, does not constitute "metering" energy consumption.

Accordingly, Bertness fails to disclose "employing a processing circuit to generate metering information relating to the consumption of a metered commodity", as called for in claim 12. For this reason, among others, it is respectfully submitted that the rejection of claim 12 as anticipated by Bertness is in error and should be withdrawn.

4. Claims 13-19

Claims 13-19 all depend from and incorporate all of the limitations of claim 12. Accordingly, for at least the same reasons as those set forth above in connection with claim 12, it is respectfully submitted that the rejections of claims 13-19 as being anticipated by Bertness are in error and should be withdrawn.

5. Claim 20

Claim 20 recites, among other things, a processing circuit that is "operable to . . . generate metering information. . . including load profiling information." Applicants have carefully reviewed Bertness and have found no suggestion or disclosure of a processing circuit that generates metering information in the form of load profiling information. For this reason, among others, it is respectfully submitted that the rejection of claim 20 as anticipated by Bertness is in error and should be withdrawn.

6. Claim 21

Claim 21 similar to claim 1, includes limitations of a "non-volatile . . . memory . . . for storing the metering information during normal operation", wherein the metering information is generated using energy consumption information". As discussed above in connection with claim 1, Bertness does not disclose a non-volatile memory that stores metering information as claimed. For this reason, among others, it is respectfully submitted that the rejection of claim 21 as anticipated by Bertness is in error and should be withdrawn.

III. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,

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Appendix Showing Marked-Up Version of the Amendments

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21. (amended) An arrangement for generating and storing metering information in an electricity meter for measuring consumed energy, the arrangement including:

a) a processing circuit operable to receive energy consumption information and generate metering information using the received energy consumption information[,] and a first set of calibration information;

b) a non-volatile, rewriteable random access memory for storing the first set of calibration information and for storing the metering information during normal operation, the non-volatile, rewritable random access memory operable to retain the calibration information and the stored metering information in the absence of external electrical power.